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ABSTRACT

The pilot project described in this report was undertaken by the College of DuPage (CD) to increase the clerical efficiency of seven administrative offices through the installation of a computerized word processing and data transmission system. The first section of the report provides background information detailing: the history of computer utilization at CD; the hardware and software utilized by the college; and the administrative efforts undertaken by the college to coordinate computer-related purchases among departments. The next section details: (1) the long-range goals of the project, which was conducted to identify the technical and non-technical factors to be included in a comprehensive plan for the automation of all CD offices; and (2) the procedures followed during the pilot project in converting office operations to the new system, which provided administrators and their secretarial support with video workstations at which mail can be generated, edited, received, filed, or dispatched. Included in this section is a discussion of the training efforts undertaken to acquaint personnel with the new system and the procedures followed in eliminating three clerical positions rendered obsolete by its implementation. The final three sections of the report describe: hardware components and associated costs; the line-item operating budget of the project; and the revolving cost savings fund through which the project was financed. (JP)

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OFFICE AUTOMATION PI'OT: A PAPERLESS APPROACH AT COLLEGE OF DUPAGE.

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Paper presented at the 1980 CAUSE Conference "Productivity--A Key to Survival in the 1980's" (Phoenix, AZ, December 7-10, 1980).

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OFFICE AUTOMATION PILOT: A Paperless Approach

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Abstract

A progress report on the development and implementation of a two year Office Automation Pilot: A Paperless Approach.

This pilot includes the installation of a WANG OIS 140 mini-computer connected to a host IBM 4341 computer in IBM 3271 "look-a-like" controller mode. It encompasses word processing, electronic document filing and retrieval at the host, data processing (all current 3270 applications using CICS), electronic mail (local and national) and electronic calendars.

Any of the seven administrators or four management support staff in the Office Automation Pilot can create, send, receive, forward or file mail from their CRT workstations located at each of their desks. Mail will also be directed electronically via the IBM 4341 host connection to the GTE TELENET Telemail Network using X25 protocol. With these facilities a participant can send a one page letter anywhere in the country and have it delivered in just a few seconds at an approximate delivery cost of fifteen cents.

The project is being funded entirely as a result of productivity increases on a two year full payback basis for all equipment, software, and remodeling expenses. The elimination of three full time clerical positions is the primary source of these savings.

TC 810 191

OFFICE AUTOMATION PILOT: A Paperless Approach

Table of Contents

Abstract..... 1
Table of Contents..... 2

INTRODUCTION
College of DuPage..... 3
Computer Services..... 3
Long Range Computer Services Master Plan... 3
Computer Hardware and Software..... 4
Management Model..... 5
Memorandum of Opinion..... 5

OFFICE AUTOMATION PILOT
Scope and Objectives..... 7
Administrators..... 9
Classified Staff..... 9
Evaluation.....10

TECHNICAL
Hardware and Software.....11
Communications.....12
Implementation Schedule.....13

FINANCIAL
Operating Budget.....14
Revolving Cost Saving Fund.....14

FUTURE.....15

OFFICE AUTOMATION PILOT: A Paperless Approach

INTRODUCTION

College of DuPage

College of DuPage is a comprehensive community college established in 1966 in ten high school districts west of Chicago, Illinois. Since 1967, student enrollment has grown from fewer than 3,000 students to more than 26,000 students. The College offers a variety of programs that include the first two years of baccalaureate education, career education, general studies, community education, and public service activities.

The main campus is located in Glen Ellyn, Illinois; however, classes are also held in over 50 locations throughout the county to provide greater accessibility to the College for district residents.

Computer Services

Computing at College of DuPage began with an IBM 360/30 maxi-computer in a trailer in 1967 and progressed to a position of leadership in higher education terminal based administrative systems in the late 70's. Much of the development of on-line systems was sparked by a grant to develop an interactive terminal based counseling program (CVIS - Counseling and Vocational Information System). This terminal communication system was the base from which the registration, financial accounting, library, and other administrative systems were developed.

During the 1970's the institution continued to expand as did demands on the CVIS system until, in 1978, the administration recognized the need for a long range computer services master plan for College of DuPage.

Long Range Computer Services Master Plan

In the spring of 1979, Computer Services staff developed a formal long range plan for review by the Computer Services Management Committee. This plan started with the mission, philosophy, goals and history of both College of DuPage and Computer Services, and a discussion of computing industry trends. The plan included detailed sections on functional requirements for both academic computing and administrative systems, a technical plan for computing hardware and software (showing several alternatives), and a financial plan.

Of particular interest is the section on industry trends relating to hardware, software, and staffing. These sections

conclude that, for College of DuPage, the best course of action was to invest in commercially developed and maintained software rather than in a larger staff. As a result of this conclusion, the Computer Services Department has a very competent but small full time staff of seventeen people.

The long range plan was approved in June 1979 by the Computer Services Management Committee and the Board of Trustees. Implementation of the plan began almost immediately.

Computer Hardware and Software

The current hardware at College of DuPage includes an IBM 4341 maxi-computer for administrative systems and some academic computing, a Hewlett-Packard 3000 mini-computer for academic computing, and a DEC 11/34 mini-computer for the CLSI library system. Computer Services also operates an NCS-7000 mini-computer based optical mark reader.

In addition to local hardware, College of DuPage also uses the PLATO System at the University of Illinois, the EDUNET Network, the OCLC Library Network, the MDSI Network, and the GTE TELENET Telemail Network.

Recognizing the increased role of micro-computers in education, College of DuPage has recently acquired over fifty Radio Shack TRS-80's, Apple II's, Commodore Pets, and a Texas Instruments 99/4 among others.

Many of these fifty plus micro-computers and over one hundred terminals are connected to the mini-computers and maxi-computers described above. Many are hard wired but some have dial-up capabilities.

Of particular interest is the use of numerous Lear-Sieglar ADM 3A CRT terminals which can dial-up all of the systems described above. In addition to being just an asynchronous terminal, they can access the IBM 4341 maxi-computer in an "IBM 3270 mode" via a protocol converter box located at the central computer site. It allows use of all the hundreds of programs which were written to support the IBM 3270 terminals only.

Along with the equipment described above the College has acquired approximately one half million dollars worth of commercially prepared software packages since the adoption of the long range plan. These packages range from administrative systems such as the CICS Mailing Information System (MAIL)

from Software Module Marketing, the IRI On-Line Student Records System, and the CLSI library system among many others. It also includes academic systems like a nuclear power plant simulator, a reaction kinetics system, a music composer, and a retail management system among numerous others.

Management Model

Another interesting aspect at College of DuPage is the management model which has been developed to manage and advise Computer Services.

Computer Services is managed by the Computer Services Management Committee (CSMC). Membership on the CSMC consists of the president, the two provosts and the three vice presidents. The CSMC, which has direct line responsibility for Computer Services as well as all other functions in the institution simply by their collective individual positions within the institution, meets on the third Wednesday of each month at 9:00 AM.

Two other advisory committees are also included in this management model. The Administrative Systems Users Advisory Committee, which also meets monthly, consists of a mixture of key area administrators. As its name implies it focuses on the computer resources which primarily support administrative functions.

A third committee focuses primarily on academic users of computing and is called the Academic Computing Users Advisory Committee.

Memorandum of Opinion

In the fall of 1978 it was realized that the academic and administrative departments were buying computer related equipment and software items without any overall plan or coordination. This practice was being encouraged in large by the technological advances being made in the industry where prices were falling to new all-time low levels. Because of this, a department could acquire a terminal, micro-computer, or mini-computer for only a few hundred to a few thousand dollars.

As the process of developing a plan progressed, it became clear that an eight year plan could not be developed which would encompass every possible future use of micro- and mini-processor technology. This included security systems,

typesetting machines, voice telephone systems, micro-computers, mini-computers, and text or word processing systems among many others.

Since individual departments were continuing to acquire computer related equipment and software as the long range plan was being developed, Computer Services became increasingly concerned that items being acquired now may not be compatible with the overall direction the institution would be choosing for the next decade. Immediately a search began for an internal mechanism or procedure which would solve both problems, e.g., individual departments buying computer related items without overall coordination and the inability to spell out every item which computer technology might penetrate in the next eight years.

After considering a number of alternatives a decision was made to submit a formal recommendation to the Computer Services Management Committee for their review, consideration, and approval. The recommendation, entitled "Coordination of Instructional and Administrative Computer Related Equipment and Software Acquisitions," is listed below in its entirety.

> RECOMMENDATION
> CSMC hereby creates the administrative policy requiring that all computer related equipment and software acquisitions be formally reviewed in writing via a "memorandum of opinion" by Computer Services prior to acquisition and that said policy be monitored and enforced by the C/D Purchasing Department. Final approval of said acquisitions will rest with the CSMC.

This policy recommendation was approved on December 20, 1978, and the College of DuPage has continued to operate under its guidance and direction since that time.

The results have been interesting to say the least. Many believe that it can be fairly stated that the response from individual departments has been very well received.

One area of benefit resulting from this policy has been an increased awareness on the part of the departments for planning. Several academic departments have developed long range plans for the first time. The Secretarial Science Department's plan called for a whole new curriculum, including a new department name--Office Technologies. Because of this increased focus on planning, the departments are finding it easier to get the resources they need to carry out their respective missions.

OFFICE AUTOMATION PILOT: A Paperless Approach

INTRODUCTION

A second area of benefit is the campus wide compatability for interconnection to the mini- and maxi-computers on campus, as well as the computing resources available through the national educational computer networks. Numerous spin-off benefits result from campus-wide compatibility, including ease in problem determination of a complex network and ease in coordinating hardware and software maintenance activities. Finally, the overall institutional planning seems to be enhanced because of the institutional awareness of "what's happening" at the department levels. This has even occurred for items often times not previously considered to be computer related.

However, as is often the case with any change of this magnitude, some "period of adjustment" and "tuning" in the process was necessary. Since the policy was implemented in mid-year, literally months after the individual departments had budgets "approved" at the highest level, it was a shock for some of them to find out they needed to go through a new level of review, justification, and approval. This, however, was felt to be only a start-up problem during the first year. For the second year, this review was tied in prior to budget "approval" at the highest level and therefore puts the "memorandum of opinion" process in the budget preparation cycle where it belongs.

One other issue of importance which was discussed at the time was whether or not an item price level, if any, should be included or excluded from the policy. It was decided to let the policy be all encompassing, and that if experience demonstrated that it needed to be refined, it could be modified at a later date. This might come under what some call the "do it now" philosophy. It is probably better to take some action now, using the knowledge available at the time, rather than spending years trying to define every possibility which might occur and never doing anything or doing something after it's too late.

OFFICE AUTOMATION PILOT

Scope and Objectives

"All executives have multifunctional terminals. Computer-based voice recognition allows draft documents to be output from spoken words. The words first appear on a terminal display for editing and revision by the author.

OFFICE AUTOMATION PILOT

The final draft is sent via electronic mail anywhere in the world, with a duplicate filed in a micrographic storage system. As a matter of course, no paper is used."

The above paragraph describes the office of the 1990's. "The paperless office" is the way of the near future! As a public educational institution, C/D felt it had an obligation and a commitment to it's community and students to provide the best educational system possible within budgetary constraints. Staying within the budgetary constraints has posed a challenge, considering the ever increasing burden of administrative support costs.

In an effort to increase the efficiency and effectiveness of the clerical/administrative support operation, an Office Automation Pilot was proposed and subsequently approved in July 1980 by the Board of Trustees. It is based on the most advanced integrated data and word processing equipment and software available at the time.

In order to provide this experiment with both vertical and horizontal organizational relationships seven offices were selected to participate. They include: 1) Provost, Main Campus; 2) Executive Dean; 3) Dean of Students; 4) Dean, Business and Services; 5) Dean of Occupational Division; 6) Associate Dean, Technology; and 7) Associate Dean, Health and Public Services.

These administrators are served by a management support team consisting of: one Management Support Coordinator; one Management Support Specialist II, and two Management Support Specialist I's.

The objectives for the Office Automation Pilot are:

1. To increase the efficiency and productivity of the clerical/administrative support operation of the above mentioned seven offices.

2. To effect cost reductions as feasible and appropriate.

3. To develop a personnel classification system as it relates to the automated office, including career paths for the clerical/administrative staff related to the level of responsibility and duties assigned.

4. To determine the technical and non-technical aspects of implementing a comprehensive plan for

all C/D offices, e.g. training, maintenance, interface. psychological.

5. To develop a Long Range Office Automation Master Plan for C/D. This plan should be completed so implementation can begin in July 1982.

Administrators

Some relocation of administrative offices was required to implement the pilot. This included re-arranging offices to effectively utilize the management support team concept. It also encompassed remodeling two suites to accommodate these administrators. All the vacated offices were then converted to much needed conference rooms.

Each administrator has a video workstation at his/her desk and access to the administrative support team to handle necessary office functions.

Training is provided for all administrators involved in the pilot. This includes information entry and retrieval, dictation, organization of work, and procedures for efficient use of word processing equipment. Training has also been offered for office and text processing, data processing, and electronic mail, while training for electronic calendaring is planned for in the near future.

These training sessions are provided by one Secretarial Science faculty member and several Computer Services staff members.

Classified Staff

With the implementation of the Office Automation Pilot all pre-pilot secretarial staff were guaranteed employment without loss of salary at C/D.

The previous secretarial positions that existed in the offices referred to were abolished and four new positions were created. All seven secretaries were also given an exclusive opportunity to apply for the newly formed positions. Complete job descriptions and qualifications were published. An interview screening and selection model was employed which eliminated the respective administrators from being involved in the process for his/her secretary.

All seven desired to apply for the new positions and,

in fact, four accepted positions. For those not involved Personnel Policy #4061 Assignment of Staff was followed as described below:

B. Classified Personnel

1. A classified employee whose position has been discontinued and whose work performance has been satisfactory shall be placed in a comparable position if available. If a comparable position is not available, the person shall be placed in a position for which the person is qualified at no reduction in range classification or step placement until such time as a comparable position is available or performance evaluation inducates otherwise.

   a. If a comparable position is available at a later date, the employee must be willing to accept such a position, otherwise his/her placement will be reduced to the position being held.

The four people selected to fill the new positions were trained in the following areas: word processing equipment operations, telephone demeanor, data entry and retrieval, dictation equipment operation, and efficient office procedures.

A Secretarial Science faculty member provided much of the above training since C/D currently is teaching a word processing concepts course and has defined two additional word processing courses. Computer Services staff are providing the other training components. In addition the Management Support Coordinator was sent to two WANG classes.

All the activities in the pilot are religously documented and a procedures manual is being developed to be used as a guide for future office conversions at College of DuPage.

Evaluation

During the pilot three evaluation and installation studies are being conducted as shown in the Implementation Schedule. Identical functional activity surveys and attitudinal surveys are being administered for all three studies. The results of these are being analyzed and summarized in a written report.

TECHNICAL

Hardware and Software

The following table lists the equipment needs for the first year (or base) as specified in the Secretarial Science 5-Year Plan and the additional equipment needed to support the Office Automation Pilot.

A change to the larger WANG Office Information System (OIS) 140 was required to handle the additional workstations and storage requirements of the Office Automation Pilot.

The WANG OIS 140 and its associated workstations are serving both as text or word processing terminals as well as data terminals. Three of the thirteen workstations have dial-up TTY capabilities for accessing on campus asynchronous computer ports as well as national computer networks. Plans also include attaching the WANG OIS 140 unit to the IBM 4341 computer as a "look a like" IBM 3271 controller in the near future.

When WANG delivers this software, it will be a major accomplishment because it protects the large investment College of DuPage already has made in data processing and provides for all functions to be performed at a single workstation. This is important because it will significantly reduce the equipment requirements of the future.

Hardware Description		Purchase Price	Annual Maintenance
Secretarial Program Base			
1 WANG OIS 125	=	23,845	2,500
2 WANG 5536-2 CRTS (1 w TTY)	=	8,084	480
1 WANG 6581-W Printer 40 CPS	=	5,640	420
Sub-Total	=	37,569	3,400
Office Automation Pilot			
1 WANG OIS 140 (additional amount over the base WANG OIS 125)	=	6,180	80
11 WANG 5536-2 CRTS (2 w TTY)	=	47,312	2,640
2 WANG 6581-W Printers (40 CPS)	=	11,280	840
Sub-Total	=	64,772	3,560
Total	=	102,341	6,960

OFFICE AUTOMATION PILOT: A Paperless Approach

TECHNICAL

The WANG OIS 140 workstations replaced several pieces of existing data processing equipment which was already being used in the offices participating in the pilot. These are being sold in the open market to the highest bidder using the following assumptions: 1) s ll oldest units; and 2) sell fall 1980.

The equipment being replaced includes three IBM 3278 CRT's and two IBM 3287 printers.

TECHNICAL

Implementation Schedule Summary

Description	FY81 JASONDJFMAMJ	FY82 JASONDJFMAMJ
Phase I		
- Select Support Team	BC.....	.....
- Remodel Offices	BC.....	.....
- 1 Month Pre-Install Study	.BC.....	.....
- Install Cabling	.BC.....	.....
- Install WANG OIS 140 System	.BC.....	.....
- Train Support Team - WP	..BC.....	.....
- Train Administrators - WP	..BC.....	.....
- 1 Month Post-Install Study	...BC.....	.....
- Train Support Team-Elec Mail	.....BC.....	.....
- Train Administrators-Elec Mail	....BC.....	.....
- Train Support Team-Elec Cal	.....BC...	.....
- Train Administrators-Elec Cal	.....BC...	.....
Phase II		
- 1 Year Post Install Study	.....	BC.....
- Develop Long Range Office Automation Master Plan	.....	.B***C.....
- Approve Long Range Office Automation Master Plan	.....	.....BC....

B = Begin described activity
C = Complete described activity

FINANCIAL

Operating Budget Analysis

		FY 81	FY 82
Non-Office Automation Pilot			
Classified Staff (7) *	=	97,764	105,618
Hardware/Software Maintenance	=	1,950	1,950
Sub-Total - Current	=	99,714	107,568
Sub-Total - Cumulative	=	99,714	207,282
Office Automation Pilot			
Classified Staff (4) *	=	60,808	65,741
Hardware/Software			
Purchase	=	64,772	0
Maintenance	=	3,560	3,560
Less sale of 3 CRT's/2 Printer	=	(16,193)	0
Communications			
Data	=	1,300	1,100
Voice	=	6,500	0
Training	=	1,000	500
Install , Remodeling & Other	=	4,500	400
Sub-Total - Current	=	125,947	71,301
Sub-Total - Cumulative	=	125,947	197,248
Difference - Current	=	(26,233)	36,267
Difference - Cumulative	=	(26,233)	10,034

* Nine percent inflation factor used for salaries and $1500 used for benefit factor.

Revolving Cost Savings Fund

As a result of the planning which developed the Office Automation Pilot it became apparent that up front monies were required to get projects like this started. During this process the notion of setting up an internal funding mechanism to make "loans" to projects such as this was conceived.

After much discussion, it was decided to call it the Revolving Cost Savings Fund. In June 1980 the Board of

FINANCIAL

Trustees approved the creation of this fund with a balance of $150,000.

The fund is to be used to support projects that proposed to be able to reduce costs while maintaining or even increasing existing productivity levels. The savings engendered from a given project is then to be paid back to the fund from the respective operating fund.

Each project is required to be approved by the Board of Trustees on a project by project basis. As money is returned to the fund from savings, other projects are then funded. This approach has been used by some industries which have found the pay back in terms of increased savings and greater productivity to be excellent. C/D felt this would provide an incentive for administrators, faculty and staff to develop projects as they know the money is there and they would not need to compete with other priorities in the operating budget. Each project is judged on its own merits and funded if the pay back is adequate and the project deemed worthwhile.

The Office Automation Pilot became the first project to request a "loan" from this fund which was to be paid back over a period of two years with the savings realized from the reduction of staff from seven to four classified positions (secretarial type positions).

FUTURE

The future for office automation at College of DuPage is very bright. College of DuPage is very fortunate to have an excellent faculty, administrative, and support staff. In addition, there is a climate of excitement as planning begins for developing a long range office automation master plan.

It is hoped that the learning experiences derived from the Office Automation Pilot will provide the necessary techniques and insight required to bring office automation to all offices at College of DuPage in the near future.

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